REMARKS/ARGUMENTS

Claims 1-24 remain pending in this application. All of the claims are rejected. Reconsideration of the claim rejections on the basis of the remarks presented below is respectfully requested.

Rejection Under §§102/103

The Examiner continues to maintain her rejection of claims 1-24 under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Cetel et al. EP 0848 071 A1 ("Cetel") for the reasons set forth in the previous Office Action concerning this case dated September 19, 2007. The rejection is respectfully traversed.

Cetel discloses a "P value" as a parameter for anticipating properties of the alloy, such as creep rupture characteristics, based on weight percent of the elements which compose the alloy (see, e.g., lines 40 to 49 on page 3 of Cetel). The reference states that alloys having a P value within a predetermined range have superior qualities with regard to creep strength, heat treatability, corrosion resistance, and the like (see lines 49 to 51 on page 3 of Cetel).

The equation provided to calculate P value (see lines 44 to 46 on page 3 of Cetel), however, does not include weight percent of elements of platinum group, to which Ru belongs, as a component of the equation. This may be because, as is further developed below, Ru is only identified as an optional component of the claimed superalloy. Furthermore, while the inclusion of the platinum group in the alloy is disclosed in Cetel, the reference contains no descriptions or explanation with regard to any specific technical advantages that are or may be obtained due to the inclusion of the platinum group, and in particular Ru, in the alloy. Therefore, in applicants' view, Cetel does not in any technical sense take into account the inclusion of Ru in the alloy since it provides no evidence or even a discussion of any advantage(s) to be obtained therefrom.

In contrast, the claims of the present application recite an alloy that requires the inclusion of 4.1 wt% or more of Ru, thereby providing specific technical advantages as shown in Fig. 1 (provided as Attachment B to this response and discussed further *infra*) and Table 2 set forth below. The data provided in the therein clearly demonstrates the important contribution of, Ru to an alloy according to the present application.

While applicants will concede that Cetel includes a 'passing mention' concerning the possible inclusion of Ru in the claimed superalloy composition, i.e., as an optional component of such a superalloy, there is (as indicated above) no recognition by the authors of the Cetel reference with regard to the important role (as now discovered by the applicants) which Ru plays in the alloy formulation described and claimed in the present application. This is precisely why the reference teaches only to optionally include Ru in the formulation, as evidenced in claim 1, for example, which recites the inclusion of 0-10.0% of the Group III, series 2 and 3 metals. The indicated Group includes Ru and other metals. Thus Ru is only an optional component of the superalloy since the superalloy may include, for example (a) 0% of the indicated metals (inc. Ru), or (b) Group III metals (e.g., palladium, platinum, etc.) other than Ru. In summary, therefore, whereas Cetel indicates that Ru may be present in the superalloy therein described and claimed, Ru is a required component of the superalloy according to the present application.

Further to the above, in the laid-open publication (EP 0 848 071 A1) of the original Cetel application, the composite ratio of Cr in the alloy is stated as being 0.4 – 2.9 wt%. However, in the Cetel published patent (EP 0 848 071 B1), the composite ratio of Cr in the alloy is limited to 0.4 – 1.75 wt%. Applicants, therefore, take this limitation in the composite ratio of Cr (i.e., 0.4-1.75 wt% vs. 0.4-2.9 wt%) to mean that an alloy which includes 1.75 – 2.9 wt% of Cr was not considered by the authors of the reference to be unique (and thus patentable).

In contrast, in the present application, an alloy having high strength is obtained, despite that the composite ratio of Cr in the alloy (2.0 – 5.0 wt%) is in the range which is considered to have no patentability in the case of Cetel.

The following Table 1 sets forth the creep rupture life and the Larson-Miller parameter of embodiments 1 to 14 of the present application.

Table 1

Embodiment	Creep rupture life (h)	Larson-Miller parameter
1	326.50	50.7
2	753.95	51.6
3	1062.50	52.0
4	966.00	51.9
5	1256.00	52.2
6	400.00	50.9
7	1254.00	52.2
8	682.00	51.5
9	550.00	51.3
10	658.50	51.5
11	622.00	51.4
12	683.50	51.5
13	766.35	51.6
14	1524.00	52.4

Note 1: Creep rupture life is measured at 1373K (1100°C), 137 MPa

Note 2: Larson-Miller parameter (P) is obtained by the equation:

$P = T\ (\text{LOG TIME} + 18) \cdot 10^3$

(In this equation, "T" is absolute temperature, "TIME" is creep rupture life)

FIG. 6 of the Cetel reference (EP 0 848 071 B1), on which the Larson-Miller parameters of Table 1 have been plotted, is provided as Attachment A to this Response. The figure illustrates the relationship between the Larson-Miller parameters and stresses loaded onto the alloy.[Note: the Examiner is respectfully informed that in the above equation, "$P = (T = 460)\ (\text{LOG TIME} + 18) \cdot 10^3$", i.e., relied upon in FIG. 6 (Attachment A), the Larson-Miller parameter which is measured at degrees C (centigrade) is converted to degrees F (Fahrenheit). However, this equation has an error. "$P = (T + 460)\ (\text{LOG TIME} + 18) \cdot 10^3$"

is actually the correct formula].

The stress (137 MPa) in Table 1 corresponds to 20 Ksi in FIG. 6. Therefore, the Larson-Miller parameters of Table 1 are plotted at the position of 20 Ksi in the figure. As shown in FIG. 6 (Attachment A), the Larson-Miller parameters of the alloys of the present application (a range denoted by an arrow in the figure) are clearly greater than those of the alloys of Cetel.

The alloy of the present application has a strength that is clearly higher than that of the alloy of Cetel although the composite ratio of Cr in the alloy is set to the range of 2.0 – 5.0 wt%. Therefore, the presently claimed superalloys provide specific technical benefits which cannot be expected from a superalloy according to Cetel as shown in the attached FIG. 6 by setting the composition of the elements such as Cr in the alloy to the range as defined in the claims of the present application. Applicants respectfully submit that, consequently, the presently claimed superalloy is even further patentably distinguishable over the disclosure contained in Cetel.

Based on the remarks presented above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections based on §§102/103.

Double Patenting Rejection

Claims 1-24 are additionally rejected on the ground of nonstatutory obviousness-type double patenting over claims 1-3 of U.S. Patent No. 6,966,956 to Koizumi et al. This rejection is also respectfully traversed.

With regard to the composite ratio of Ru in the alloy, the claims of the present application recite "4.1 – 14.0 wt%" whereas Koizumi claims "1.0 – 4.0 wt%". Therefore, the scopes of claims of the present application and Koizumi do not overlap one another as regards their composite ratio of Ru. Consequently, the scope of the inventions claimed in the present application and in Koizumi are clearly distinguishable. The present claims should, thus, not be considered as an attempt to "double patent" the invention recited by claims 1-3 of the Koizumi patent.

Furthermore, as indicated above in Koizumi the upper limit of the composite ratio of Ru in the alloy is "4.0 wt%". This limitation means that composite ratio of Ru in the alloy which

exceeds 4.0 wt% is excluded from the invention of Koizumi. The Koizumi reference is, thus, indicating to one of ordinary skill in this art that the claimed invention does not include situations wherein the composite ratio of Ru in the alloy exceeds 4.0 wt%. These teachings clearly conflict with the present application in which a lower limit of the composite ratio of Ru in the alloy is "4.1 wt%". Accordingly, it cannot be expected from Koizumi that the presently claimed superalloy exhibits the same properties as that of the Koizumi composition. Therefore, the assertion of the Examiner "the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties" in the Office Action is respectfully traversed. Consequently, the applicants of this application believe that the alloy of the present application which includes 4.1 – 14.0 wt% of Ru and the advantages obtained by the limitation cannot be obvious from claims 1-3 of Koizumi.

In fact, as demonstrated below the alloy of the present application and that of Koizumi actually have different properties based on the difference of the composite ratio of Ru in these alloys.

Table 2 below sets forth Ru composition and creep rupture life values for embodiments 1 to 14 and reference examples 1 to 6 of the present application, as well as for an embodiment according to the Koizumi reference.

Table 2

	Ru(wt%)	Creep rupture life (h)
Embodiment 1	5	326.50
2	5	753.95
3	6	1062.50
4	5	966.00
5	5	1256.00
6	5	400.00
7	6	1254.00
8	5.9	682.00
9	4.6	550.00
10	5.2	658.50
11	5.2	622.00
12	6	683.50
13	6.1	766.35
14	7	1524.00
Reference Example 1	2	105.67
2	3	158.75
3	3	135.85
4	4	153.15
5	4	487.75
6	3	203.15
Embodiment of Koizumi	2	412.30

Note: Creep rupture life is measured at 1373K (1100°C), 137 MPa

Furthermore, FIG. 1 provided as Attachment B to this Response is a graph in which the values of Table 1 are plotted and the relationship between Ru composition and creep rupture life

is linearized using a method of least squares.

It is clear from FIG. 1 (Attachment B) that linearized data based on embodiments 1 to 14 has no correlation to linearized data based on the reference examples 1 to 6 of the present application, or to the embodiment of Koizumi. Moreover, the above data also makes it clear that creep rupture life of the alloy of embodiments 1 to 14 is substantially longer than that of the alloy of the reference examples 1 to 6 of the present application, as well as the embodiment of Koizumi.

As explained above, with regard to the creep rupture life of the alloy, the alloy of the present application which includes 4.1 wt% and more of Ru displays technical benefits which cannot be obtained by the alloy which includes 4.0 wt% and less of Ru. Therefore, the alloy of the present application and that of Koizumi have different properties based on the difference of the composite ratio of Ru in the alloys.

Consequently, the applicants respectfully submit that the double patenting rejection of the claims of the present application over claims 1-3 of Koizumi should be withdrawn by the Examiner.

Respectfully submitted,

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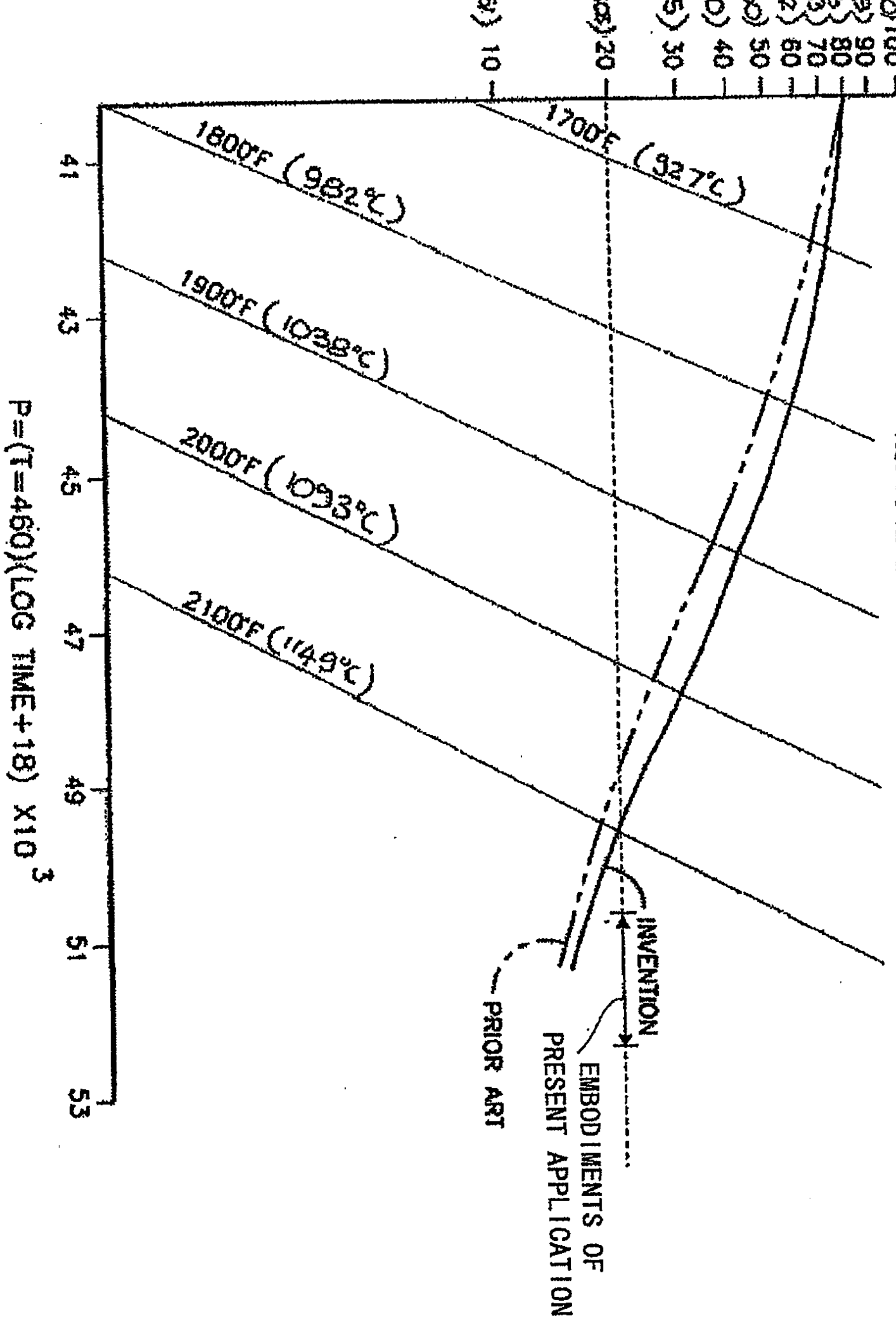
ATTACHMENT A

FIG.6



ATTACHMENT B

FIG. 1